MEMORANDUM 07/25/2000

SUBJECT: **Revised** Residue Chemistry Chapter For The Oxamyl Reregistration Eligibility Decision (RED) Document.

DP Barcode: D267628
Chemical No. 103801
Case No: 0253

FROM: John S. Punzi, Ph.D., Chemist
Reregistration Branch 2
Health Effects Division [7509C]

THRU: Alan Nielsen, Branch Senior Scientist
Reregistration Branch 2
Health Effects Division [7509C]

TO: Christina Jarvis, Environmental Protection Specialist
Reregistration Branch 2
Health Effects Division [7509C]

Attached is a revision of the Residue Chemistry Chapter for the Oxamyl Reregistration Eligibility Decision (RED) document (DP Barcod: D263849, 03/07/2000). This chapter was revised after consideration of the registrants responses to the "error only" comment period following their review of the preliminary RED Chapters and Risk Assessment and a review by the Registration Division. This revison does not reflect a recent mitigation Proposal by the registrant concerning maximum application rates to cotton and other crops, use as a seed piece dip for sweet potato, or use on soybean.

The existing residue chemistry database is essentially complete. The qualitative nature of the residue(s) of oxamyl in plants and animals has been adequately identified/characterized. Adequate analytical methods exist for data collection and tolerance enforcement. Adequate residue data exist for processed food/feed commodities. Results from animal feeding studies suggest that no tolerances are necessary for meat, milk, poultry or egg commodities. Additional field trials are required to determine an appropriate tolerance for cotton gin by-products. The need for additional tolerances and for revisions to dietary exposure/risk assessments will be determined upon receipt of the required residue chemistry data.

cc: JSPunzi(RRB2), Oxamyl Reg. Std. File, Oxamyl SF, RF, LAN
7509C:RRB2:John S. Punzi:CM2:Rm 804E:703-305-7727:07/25/2000.

OXAMYL

REREGISTRATION ELIGIBILITY DECISION

RESIDUE CHEMISTRY CONSIDERATIONS

PC Code 103801; Case 0253

TABLE OF CONTENTS page

INTRODUCTION

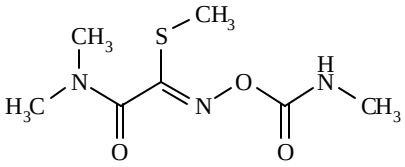
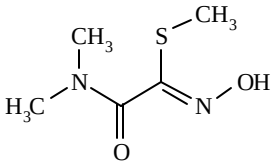
Oxamyl [methyl N',N'-dimethyl-N-[(methylcarbamoyl)-oxy]-1-thiooxamimidate] is a carbamate insecticide, acaricide, and nematocide. Oxamyl is applied preplant, at planting, postemergence, foliarly and is registered for use on apples, bananas, carrots, celery, citrus, cotton, cucumbers, eggplants, garlic, ginger, muskmelon (including cantaloupe and honeydew melon), onion (dry bulb), peanuts, pears, peppers, peppermint, pineapples, plantains, potatoes, pumpkins, soybeans, spearmint, squash, sweet potatoes, tobacco, tomatoes, watermelons, yams, and non-bearing apple, cherry, citrus, peach, and pear to control insects, mites, and/or nematodes. Oxamyl is sold in the U.S as a soluble concentrate under the trade name Vydate® by E.I. du Pont de Nemours and Company (Du Pont). The 2 and 3.77 lb/gal liquid soluble concentrate (SC/L) formulations are the only oxamyl formulations registered for food/feed uses.

REGULATORY BACKGROUND

Oxamyl was the subject of a Reregistration Standard dated 1/30/87; the subsequent Guidance Document was dated 6/87. The Residue Chemistry Chapter of the Oxamyl Reregistration Standard Update was issued on 6/18/91. These documents summarized the regulatory conclusions based on available residue chemistry data, and specified the additional data required for reregistration purposes. Several data submissions have been received since the Update. The information contained in this document outlines the Residue Chemistry Science Assessments with respect to the reregistration of oxamyl.

Tolerances for residues of oxamyl in/on plant commodities [40 CFR §180.303] are currently expressed in terms of the sum of the residues of oxamyl [methyl N',N'-dimethyl-N-[(methylcarbamoyl)-oxy]-1-thiooxamimidate] and its oxime metabolite [N',N'-dimethyl-N-hydroxy-1-thiooxamimidate] calculated as oxamyl. We note that the oxime metabolite is referred to incorrectly in 40 CFR §180.303, and should be referred to as **methyl** N',N'-dimethyl-N-hydroxy-1-thiooxamimidate. Tolerances range from 0.1 ppm (potatoes and root crop vegetables) to 10 ppm (peppermint and spearmint hay, and pineapple forage). The established feed additive tolerance (6 ppm) for the processed food commodity, pineapple bran, is expressed in terms of oxamyl *per se* [40 CFR §186.4575]. No tolerances are currently established for oxamyl residues in animal commodities. The molecular structures of oxamyl and its currently regulated metabolite are depicted in Figure A.

Figure A. Chemical structures of oxamyl and its oxime metabolite.

Compound: Oxamyl	**Compound**: Oxime
	
Oxamyl: methyl N',N'-dimethyl-N-[(methylcarbamoyl)-oxy]-1-thiooxamimidate	**Oxime metabolite**: methyl N',N'-dimethyl-N-hydroxy-1-thiooxamimidate

The Agency has updated the Livestock Feeds Table (Table 1 of OPPTS 860.1000). As a result of these changes, additional oxamyl residue data are now required for some commodities and these data requirements have been incorporated into this document. These new data requirements will be imposed at the issuance of the Oxamyl RED but will not impinge on the reregistration eligibility decisions for oxamyl. The need for additional tolerances and for revisions to dietary exposure/risk assessments will be determined upon receipt of the required residue chemistry data.

SUMMARY OF SCIENCE FINDINGS

860-1200: Directions for Use

A REFs search conducted 11/2/99 identified two oxamyl end-use products (EPs) registered to Du Pont. These EPs as well as all associated SLN registrations are listed below.

Oxamyl end-use products (EPs) with food/feed uses registered to E.I. du Pont de Nemours and Company.

EPA Reg. No.	Acceptance Date	Formulation	Product Name
352-372 [a]	12/13/97	2 lb/gal SC/L	Vydate® L Insecticide/Nematicide
352-532	3/20/97	3.77 lb/gal SC/L	Vydate® C-LV Insecticide

[a] Including SLN Nos. NY99000200, UT99000400

A comprehensive summary of the registered food/feed use patterns of oxamyl, based on the product labels registered to DuPont, is presented in Table A. A tabular summary of the residue chemistry science assessments for reregistration of oxamyl is presented in Table B. The conclusions listed in Table B regarding the reregistration eligibility of oxamyl food/feed uses are based on the use patterns registered by DuPont. The restriction against feeding cotton gin by-products to livestock should be deleted from the oxamyl labels. When end-use product DCIs are developed (e.g., at issuance of the RED), RD should require that all end-use product labels (e.g., MAI labels, SLNs, and products subject to the generic data exemption) be amended such that they are consistent with the basic producer labels.

860-1300: Nature of the Residue-Plants, Livestock

The qualitative nature of the residue in plants is adequately understood based on studies with alfalfa, apples, beans, cotton, oranges, peanuts, potatoes, tobacco, and tomatoes. Oxamyl was found to undergo hydrolysis of the methylcarbamoyl group to the oxime metabolite which then conjugates to form a glucoside. The oxime metabolite glucoside may undergo demethylation to form oximino methyl glucoside, and both glucosides may be incorporated into plant polysaccharides. The residues to be regulated in plant commodities are oxamyl and its oxime metabolite (MARC decision memo dated 11/19/99, DP260911). The current tolerance expression for raw agricultural commodities is adequate; however, the tolerance expression for the established feed additive tolerance must be modified to include the oxime metabolite.

The qualitative nature of the residue in animals is adequately understood based on studies with lactating goats and laying hens. The feeding level for the goat study was 25x based on a dietary burden calculated from a diet consisting of 50% peanut hay and 15% soybean meal (1.21 ppm). The feeding level for the hen study was 52x based on a dietary burden calculated from a diet consisting of 20% cottonseed meal, 25% peanuts, and 20% soybeans. Oxamyl was found to be metabolized rapidly and extensively in goats and hens; oxamyl and its oxime metabolite were not detected in eggs, milk, or any tissue. The Agency has tentatively concluded that there is no reasonable expectation of finite oxamyl residues of concern in animal commodities [40 CFR §180.6(a)(3)]. However, this decision will be evaluated when residue data for cotton gin by-products are received and reviewed.

860-1340: Residue Analytical Methods

Adequate methods are available for data collection and tolerance enforcement for plant and animal commodities. The limit of quantitation is approximately 0.02 ppm. The Pesticide Analytical Manual (PAM) Vol. II lists a GLC method with flame photometric detection (sulfur mode), Method I, for the enforcement of tolerances for plant and animal commodities. This method involves alkaline hydrolysis to convert oxamyl to the oxime metabolite; therefore, the method determines combined residues of oxamyl and its oxime metabolite. Methods used for data collection are essentially the same as the PAM Vol. II method.

The FDA PESTDATA database dated 1/94 (PAM Volume I, Appendix I) indicates that oxamyl is completely recovered (>80%) by Multiresidue Methods Section 302 (Luke Method; Protocol D) and Section 401. The registrant has conducted multiresidue methods trials with the oxime metabolite using Protocols C, D, and E. HED has forwarded the results of these multiresidue trials to FDA for evaluation and inclusion in PAM Vol. I, Appendix I. Radiovalidation of the method for meat, milk, poultry, or eggs was waived since no residues of oxamyl were found in exaggerated rate feeding studies.

860-1380: Storage Stability Data

Adequate storage stability data are available for residues of oxamyl and its oxime metabolite in/on root crop vegetables (onions and potatoes), leafy vegetables (celery and mint), fruits and fruiting vegetables (apples, cucumbers, oranges, pineapple, and tomatoes), and oilseeds and nuts (cottonseed, peanuts, and soybeans). Residues of oxamyl and its oxime metabolite were found to be stable for at least 24 months of frozen storage in/on these commodities, and residues of oxamyl *per se* were additionally found to be stable for at least 30 months in/on soybeans, and for at least 36 months in/on apples, celery, cottonseed, cucumbers, mint, onions, oranges, peanuts, potatoes, and tomatoes. These data adequately support the storage intervals and conditions of samples from all previously submitted magnitude of the residue studies.

860-1400: Water, Fish, and Irrigated Crops

Oxamyl is presently not registered for direct use on potable water and aquatic food and feed crops; therefore, no residue chemistry data are required under these guideline topics.

860-1460: Food-Handling

Oxamyl is presently not registered for use in food-handling establishments; therefore, no residue chemistry data are required under this guideline topic.

860-1480: Meat, Milk, Poultry, and Eggs

The Agency has determined that there is no reasonable expectation of finite oxamyl residues of concern in animal commodities [40 CFR §180.6(a)(3)]. Therefore, livestock feeding studies and tolerances for livestock commodities are not required. There are no registered direct treatments of oxamyl on livestock.

860-1500: Crop Field Trials

The reregistration requirements for magnitude of the residue in/on plants have been fulfilled for the following crops: apple, banana, cantaloupe, celery, citrus, cottonseed, cucumber, eggplant, garlic (translated from onion), ginger, honeydew melon, mint (peppermint and spearmint), onion (dry bulb), pear (translated from

apple), peanut, pepper, pineapple, plantain (translated from banana), potato, pumpkin, soybean, summer squash, sweet potato, tobacco, tomato, watermelon, winter squash, yam (translated from potato) and non-bearing crops (including apple, cherry, citrus, and peach).

As a result of changes in Table I of the Series 860 guidelines, magnitude of the residue data are currently required by the Agency for cotton gin by-products. The current label restriction prohibiting the feeding of cotton gin by-products is not considered to be practical or enforceable; therefore, this restriction must be deleted from the label.

860-1520: Processed Food/Feed

The reregistration requirements for magnitude of the residue in the processed food/feed commodities of apples, citrus fruits, cottonseed, peanuts, peppermint, pineapples, potatoes, soybeans, spearmint, and tomatoes are fulfilled. The processing data from these studies do not indicate the need to establish tolerances for the combined residues of oxamyl and its oxime metabolite in these processed commodities with the exception of pineapple process residue (see "Tolerance Reassessment Summary").

860-1850 and -1900: Confined and Field accumulation in Rotational Crops

Data from adequate confined and field rotational crop studies, in conjunction with the plant metabolism profile, indicate that rotational crop tolerances are not required and that a 4-month plant-back interval (PBI) is adequate as long as the maximum total seasonal application rate does not exceed 12 lbs ai/A. Currently, all oxamyl products with food/feed uses specify a 4-month PBI and seasonal application rates are <12 lb ai/A.

Table A. Food/Feed Use Patterns Subject to Reregistration for Oxamyl (Case 0253).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Apple						
Broadcast application Delayed dormant and/or foliar Ground equipment	2 lb/gal SC/L [352-372]	2 lb/A or 0.5 lb/100 gal [50-400 gal/A of finished spray]	Not specified (NS)	2 lb/A	14	Foliar applications may be made as needed or at 7- to 14-day intervals. Applications at bloom or within 30 days after bloom are prohibited. Grazing of livestock in treated orchards is prohibited.
Dilute spray application After full bloom (between 5 and 30 days) Ground equipment	2 lb/gal SC/L	1 lb/A or 0.5 lb/100 gal	2	2 lb/A	14	Use limited to PA, VA, WV, or NJ. Application may be made alone or as a tank mix with other pesticides. Grazing of livestock in treated orchards is prohibited.
Broadcast application Delayed dormant Aerial equipment	2 lb/gal SC/L	0.5 lb/A	1	2 lb/A	14	Use limited to WA. Application may be made in 5-15 gal/A. Additional applications may be made with ground equipment only. Grazing of livestock in treated orchards is prohibited.
Banana						
Foliar or soil treatment At planting and post plant Ground equipment (spotgun applicator)	2 lb/gal SC/L [352-372]	2.4 g per corm or "seed"	NS	4 lb/A	1	Use limited to PR. At plant application is made in the planting hole; a second application may be made as a foliar or soil treatment 2-3 months after planting. Subsequent applications may be made at 3- to 4-month intervals. Grazing or foraging of animals in treated areas is prohibited.

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Carrot						
Soil incorporated treatment Preplant Ground equipment	2 lb/gal SC/L [352-372]	8 lb/A	NS	8 lb/A	14	Use prohibited in CA. Applications may be made in a minimum of 20 gal/A. Foliar applications are made beginning at the onset of damage and may be repeated twice at 2- to 3-week intervals.
Soil in-furrow treatment At planting Ground equipment		4 lb/A	NS			
Directed spray application Foliar Ground equipment		1 lb/A	3			
Celery						
Soil incorporated treatment Preplant Ground equipment	2 lb/gal SC/L [352-372]	4 lb/A	1	6 lb/A	21	Use limited to FL, MI, PA, and TX. Preplant application is made as a band (8-16 inches) treatment using 20 gal/A.
Transplant application Foliar Ground equipment	2 lb/gal SC/L [352-372]	2 lb/A	1	6 lb/A	21	Use limited to FL and OH. Application may be made in a minimum of 100 gal/A by ground.
	2 lb/gal SC/L	2 lb/A	NS	NS	21	

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Celery (continued)						
Directed spray application Foliar Ground equipment	2 lb/gal SC/L [352-372]	2 lb/A	2	6 lb/A	21	Use limited to FL. Application may be made in a minimum of 100 gal/A by ground. The first application is made three weeks after transplanting and the second application is made three weeks later.
	2 lb/gal SC/L	2 lb/A	2	6 lb/A	21	Use limited to OH. Application may be made in a minimum of 10 gal/A by ground. The first application is made three weeks after transplanting and the second application is made three weeks later.
Directed spray application Foliar Ground equipment	2 lb/gal SC/L	1 lb/A	3	6 lb/A	21	Use limited to MI, PA, and TX. Applications may be made in 20 gal/A at 2- to 3-week intervals.
Broadcast application Foliar Ground or aerial equipment	2 lb/gal SC/L [352-372]	1 lb/A	NS	6 lb/A	21	Use limited to FL. Applications may be made in a minimum of 5 gal/A by air. Applications are made when insects first appear and may be repeated at 5- to 7-day intervals or as needed.
	2 lb/gal SC/L	1 lb/A	NS	6 lb/A	21	Use limited to AZ. Applications may be made in a minimum of 10 gal/A by air. Applications are made when insects first appear and may be repeated at 5- to 7-day intervals or as needed.

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Celery (continued)						
Broadcast application Foliar Ground or aerial equipment	2 lb/gal SC/L	1 lb/A	NS	NS	21	Use limited to CA. Applications may be made in a minimum of 10 gal/A by air. Applications are made when insects first appear and may be repeated at 5- to 7-day intervals or as needed.
Citrus						
Foliar treatment Ground equipment	2 lb/gal SC/L [352-372]	1 lb/A or 0.25 lb/100 gal [400 gal/A of finished spray]	6	6 lb/A	7	Applications may be made as needed at 2- to 6-week intervals. Grazing of livestock in treated orchards is prohibited.
		1 lb/A [100-500 gal/A of finished spray]	NS			Applications may be made when new growth is about 3-4 inches long and repeated as needed. Grazing of livestock in treated orchards is prohibited.
Foliar treatment Ground or aerial equipment	2 lb/gal SC/L	1 lb/A	NS	6 lb/A	7	Applications may be made in 10-20 gal/A by air when new growth is about 3-4 inches long and repeated as needed. Grazing of livestock in treated orchards is prohibited.

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Citrus (continued)						
Chemigation Flood irrigation water or drip irrigation systems	2 lb/gal SC/L	2 lb/A	NS	6 lb/A	7	Use limited to CA. Applications may be made by metering into flood irrigation water or drip irrigation systems with a maximum application of 2 lb ai/A in any 30-day period. Grazing of livestock in treated orchards is prohibited.
Cotton						
Broadcast application Foliar Ground or aerial equipment	3.77 lb/gal SC/L [352-532]	1 lb/A	NS	4 lb/A	14	Applications may be made in sufficient refined vegetable oil (minimum of 3 pt/A) or water for thorough coverage at 6- to 8-day intervals. Grazing or feeding treated cotton to livestock is prohibited.
		0.25 lb/A	NS	2.5 lb/A		Multiple applications may be made in sufficient refined vegetable oil (minimum of 3 pt/A) or water for thorough coverage as needed. Grazing or feeding treated cotton to livestock is prohibited.
Broadcast application Foliar Ground equipment	2 lb/gal SC/L [352-372]	1 lb/A	4	4 lb/A	21	Applications may be made at 6- to 8-day intervals. Grazing or feeding treated cotton to livestock is prohibited.
		0.25 lb/A	NS	2.5 lb/A		Multiple applications may be made as needed. Grazing or feeding treated cotton to livestock is prohibited.

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Cucumber						
Soil incorporated treatment Preplant or at planting Ground equipment	2 lb/gal SC/L [352-372]	4 lb/A	NS	6 lb/A	1	Application may be made as a broadcast or band treatment; use a proportionately lower rate for band application.
Broadcast application Foliar Ground equipment		1 lb/A	NS			Applications are made when insects first appear and may be repeated at 7-day intervals or as needed. Applications may be made in sufficient water for uniform coverage.
Eggplant						
Broadcast application Foliar Ground equipment	2 lb/gal SC/L [352-372]	1 lb/A	NS	6 lb/A	1	Applications may be repeated at 1 to 3 week intervals as need.
Soil band treatment After transplanting Ground equipment		2 lb/A	NS		7 (soil/foliar)	Nematode use prohibited in CA. Soil applications are to be made 2-3 weeks after transplanting and again 4 weeks later. Two to four weeks after soil treatments, two foliar applications may be made at 1- to 2- week intervals. A 7-day PHI has been established for soil applications followed by foliar applications; a 1-day PHI has been established for foliar applications only.
Broadcast application Foliar Ground equipment		1 lb/A	2		1 (foliar only)	

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Garlic						
In-furrow drench treatment At planting Ground equipment	2 lb/gal SC/L	2 lb/A	NS	4.5	14	Use limited to OR. Applications may be made in 100-150 gal/A.
In-furrow band treatment At planting Ground equipment	2 lb/gal SC/L	4 lb/A	NS	4.5	14	Use limited to OR. Applications may be made in 20-50 gal/A.
Broadcast or band treatment Postemergence Ground equipment		4 lb/A	NS			Use limited to OR. Use a proportionately lower rate for band application. Applications may be made in 20-50 gal/A.
In-furrow spray application At planting Ground equipment	2 lb/gal SC/L	2 lb/A	NS	4.5 lb/A	14	Use limited to CA. Follow application with irrigation water. Tops of treated garlic may not be harvested.
Soil band application Ground equipment						Use limited to CA. Applications may be made in 20-40 gal/A. Follow application with irrigation water. Tops of treated garlic may not be harvested.
Irrigation application Sprinkler or furrow irrigation equipment	2 lb/gal SC/L	2 lb/A	NS	4.5 lb/A	14	Use limited to CA. Injector equipment should be adjusted to 0.5-1 hour treatment periods. Tops of treated garlic may not be harvested.
Ginger						

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Soil incorporated treatment Preplant Ground equipment	2 lb/gal SC/L	4 lb/A	NS	10 lb/A	30	Use limited to HI. Application may be made as a broadcast or band treatment; use a proportionately lower rate for band application.
Broadcast application Postplant (foliar) Ground equipment		1 lb/A	NS	10 lb/A	30	Use limited to HI. Applications may be made at monthly or every other month intervals.
Soil band treatment Postplant Ground equipment	2 lb/gal SC/L	1 lb/A	NS	10 lb/A	30	Use limited to HI. Applications may be made at monthly or every other month intervals.
Muskmelon (including cantaloupe and honeydew melon)						
Soil incorporated treatment Preplant or at planting Ground equipment	2 lb/gal SC/L [352-372]	4 lb/A	NS	6 lb/A	1	See "Cucumber."
Broadcast application Foliar Ground equipment		1 lb/A	NS			
Onion, bulb						
In-furrow drench treatment At planting Ground equipment	2 lb/gal SC/L [352-372]	2 lb/A	NS	4.5 lb/A	14	Use limited to ID, MI, OR, TX, and WA. Applications may be made in 100-150 gal/A. Tops of treated onions may not be harvested.
	2 lb/gal SC/L	2 lb/A	NS	4.5 lb/A	14	
In-furrow band treatment At planting Ground equipment	2 lb/gal SC/L [352-372]	4 lb/A	NS	4.5 lb/A	14	Use limited to MI, OR, TX, and WA. Applications may be made in 20-50 gal/A. Tops of treated onions may not be harvested.
Onion, bulb (continued)						

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Broadcast application Foliar Ground equipment	2 lb/gal SC/L [352-372]	0.5 lb/A	NS	4.5 lb/A	14	Use limited to ID, MI, OR, TX, and WA. Applications may be made in a minimum of 5 gal/A. Applications are made when insects first appear and may be repeated at 14-day intervals. Tops of treated onions may not be harvested.
	2 lb/gal SC/L	1 lb/A	NS	4.5 lb/A	14	
Broadcast application Foliar Ground or aerial equipment	2 lb/gal SC/L	0.5 lb/A	NS	4.5 lb/A	14	Use limited to NM. Applications may be made in 20-50 gal/A by ground or 5-10 gal/A by air. Applications are made when insects first appear and may be repeated at 5- to 7-day intervals.
	2 lb/gal SC/L	4 lb/A	NS	4.5 lb/A	14	
Broadcast or band treatment Postemergence Ground equipment	2 lb/gal SC/L	4 lb/A	NS	4.5 lb/A	14	Use limited to ID and OR. Use a proportionately lower rate for band application. Applications may be made in 20-50 gal/A. Tops of treated onions may not be harvested.
	2 lb/gal SC/L	2 lb/A	NS	4.5 lb/A	14	
In-furrow spray application At planting Ground equipment	2 lb/gal SC/L	2 lb/A	NS	4.5 lb/A	14	Use limited to CA. Follow application with irrigation water. Tops of treated onions may not be harvested.
Soil band application Ground equipment		2 lb/A	NS			Use limited to CA. Applications may be made in 20-40 gal/A. Follow application with irrigation water. Tops of treated onions may not be harvested.

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Onion, bulb (continued)						
Irrigation application Sprinkler or furrow irrigation equipment	2 lb/gal SC/L	2 lb/A	NS	4.5 lb/A	14	Use limited to CA. Injector equipment should be adjusted to 0.5- to 1-hour treatment periods. Tops of treated onions may not be harvested.
Broadcast Foliar Ground Equipment	2 lb/gal SC/L	0.5 lb/A	NS	4.5 lb/A	14	Use limited to ID. Make applications when insects first appear in significant numbers and repeat at 14-day intervals. Do not harvest tops of treated onions.
Broadcast application Foliar Ground or aerial equipment	2 lb/gal SC/L UT990004	1 lb/A	NS	4.5 lb/A	14	Use limited to UT. Apply in a minimum of 5 gals. of water.
Broadcast In-furrow spray application at planting	2 lb/gal SC/L NY990002	4 lb/A	NS	4.5 lb/A	14	Use limited to NY. Apply 2 gals./A in a minimum of 20 gals. of water within one week of planting.
		2 lb/A				Use limited to NY. Apply 3/4 to 1 gal/A as an in-furrow drench using 100-150 gals. of water per A, or 1 ½ to 2 gals. /A as an in-furrow band spray using 20-50 gals. of water/A. Do not harvest tops of treated bulbs. Do not use on green onions.

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Peanut						
Soil incorporated treatment Preplant or at planting Ground equipment	2 lb/gal SC/L [352-372]	3 lb/A	NS	5 lb/A	NS	Use prohibited in CA. Application may be made as a band treatment in a minimum of 10 gal/A.
Broadcast application Foliar Ground equipment	3.77 lb/gal SC/L [352-532]	1 lb/A	2			Use prohibited in CA. Foliar applications must be used following soil fumigation or preplant or at planting soil application. The first foliar application should be made three weeks postemergence and the second application three weeks later. Applications may be made in 20-40 gal/A.
Pear						
Broadcast application Foliar Ground equipment	2 lb/gal SC/L [352-372]	2 lb/A [100-600 gal/A of finished spray]	NS	2 lb/A	14	Use prohibited in CA. Applications may be made as needed. Applications at bloom or within 30 days after bloom are prohibited. Grazing of livestock in treated orchards is prohibited.

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Pepper						
Broadcast application Foliar Ground equipment	2 lb/gal SC/L [352-372]	1 lb/A	NS	6 lb/A	7	Use prohibited in CA. Applications may be made at 1- to 2-week intervals or as needed.
	2 lb/gal SC/L	1 lb/A	NS	6 lb/A	7	Use limited to CA. Applications may be made at 2-week intervals.
	2 lb/gal SC/L	1 lb/A	7	6 lb/A	7	Use limited to NM and TX on non-bell peppers. Applications may be made in a minimum of 20 gal/A by ground or 5 gal/A by air at 1- to 2-week intervals or as needed.
Transplant water treatment	2 lb/gal SC/L [352-372]	0.5 lb/A	1	6 lb/A	7	Use prohibited in CA. Application may be made in a minimum of 200 gal/A and as a supplement to foliar applications.
	2 lb/gal SC/L	0.5 lb/A	NS	6 lb/A	7	Use limited to CA. Application may be made in a minimum of 200 gal/A and as a supplement to foliar applications.
Soil treatment Drip irrigation equipment	2 lb/gal SC/L	1 lb/A	NS	6 lb/A	7	Use limited to CA. Application may be made in 40-200 gal/A.
Greenhouse foliar treatment Ground equipment	2 lb/gal SC/L	1 lb/A or 2 tsp/1,000 sq. ft	NS	6 lb/A	7	Use limited to CA. Application may be made in 100-200 gal/A or 2-5 gal/1,000 sq. ft.

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Peppermint						
Soil/foliar application As mint breaks dormancy and active root growth begins Ground equipment	2 lb/gal SC/L	3 lb/A	2	4 lb/A	21	Use limited to ID, MI, MT, OR, WA, and WI. Application may be made in a minimum of 10 gal/A. Sprinkler irrigation (½ to 1 inch) must be applied within 7 days of treatment to wash oxamyl into the root zone unless rainfall occurs.
Pineapple						
Soil incorporated treatment Preplant Ground equipment	2 lb/gal SC/L [352-372]	4 lb/A	NS	8 lb/A	30	Use prohibited in CA. A 30-day pregrazing interval has been established.
Soil broadcast treatment or soil application via drip irrigation Postplant (within 1 week)		4 lb/A	NS			
Soil application via drip irrigation Postplant		2 lb/A	NS			Multiple soil drip applications may be made at 2- to 8-week intervals. A 30-day pregrazing interval has been established.
Foliar treatment Ground equipment		2 lb/A	NS			Multiple foliar applications may be made at 2- to 4- week intervals. A 30-day pregrazing interval has been established.

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Plantain						
Foliar or soil treatment At planting and post plant Ground equipment (spotgun applicator)	2 lb/gal SC/L [352-372]	2.4 g per corm or "seed"	NS	4 lb/A	1	See "Banana."
Potato						
Soil incorporated treatment Preplant Ground equipment	2 lb/gal SC/L [352-372] [352-532]	4 lb/A	6	9 lb/A	7	Use prohibited in CA, Northeast and Mid-Atlantic states. Application may be made as a broadcast or band treatment within one week of planting. Application may be made in a minimum of 20 gal/A.
In-furrow treatment At planting Ground equipment		4 lb/A	NS			Use prohibited in CA. Application may be made in a minimum of 20 gal/A.
Broadcast application Foliar Ground or aerial equipment		1 lb/A	6	6 lb/A		Use prohibited in CA. Use limited to Northeast and Mid-Atlantic States. Application may be made in sufficient water for thorough coverage using ground equipment or in a minimum of 4 gal/A by air. Applications are made when pests first appear and may be repeated at 5- to 7-day intervals or as needed.

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Pumpkin						
Soil incorporated treatment Preplant or at planting Ground equipment	2 lb/gal SC/L [352-372]	4 lb/A	NS	6 lb/A	1	See "Cucumber."
Broadcast application Foliar Ground equipment		1 lb/A	NS			
Soybean						
Soil incorporated treatment Preplant or at planting Ground equipment	2 lb/gal SC/L [352-372] [352-532]	4 lb/A	NS	4 lb/A	NS	Use prohibited in CA. Application may be made as a broadcast treatment in 10-20 gal/A. The cutting for hay or feeding of treated forage to livestock is prohibited.
		1 lb/A	NS			Use prohibited in CA. Application may be made as a band treatment in 10-20 gal/A. The cutting for hay or feeding of treated forage to livestock is prohibited.
In-furrow treatment At planting Ground equipment		1 lb/A	NS			
Spearmint						
Soil/foliar application As mint breaks dormancy and active root growth begins Ground equipment	2 lb/gal SC/L	3 lb/A	2	4 lb/A	21	see “peppermint”
Squash						

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Soil incorporated treatment Preplant or at planting Ground equipment	2 lb/gal SC/L [352-372]	4 lb/A	NS	6 lb/A	1	See "Cucumber."
Broadcast application Foliar Ground equipment		1 lb/A	NS			
Sweet potato						
Soil incorporated treatment Preplant Ground equipment	2 lb/gal SC/L [352-372]	6 lb/A	NS	6 lb/A	NS	Use prohibited in CA. Application may be made as a broadcast or band treatment; use a proportionately lower rate for band application. Broadcast application may be made in a minimum of 20 gal/A. Planting must be made within one week of treatment.
In-furrow treatment At planting Ground equipment		4 lb/A	NS			Use prohibited in CA. Application may be made in a minimum of 200 gal/A of transplant water.
Tobacco						
Soil incorporated treatment Preplant Ground equipment	2 lb/gal SC/L [352-372] 3.77 lb/gal SC/L [352-532]	2 lb/A	NS	2 lb/A	NS	Application may be made as a bed, broadcast, or band treatment in a minimum of 20 gal/A (band) or 40 gal/A (bed or broadcast). Plants should be transplanted into treated soil within 24 hours.
Tomato						

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Broadcast application Foliar Ground or aerial equipment	2 lb/gal SC/L [352-372]	1 lb/A	NS	8 lb/A	3	Application may be made in sufficient water for thorough coverage (minimum of 100 gal/A) using ground equipment or in a minimum of 4 gal/A by air. Applications are made when pests first appear and may be repeated at 5- to 7-day intervals or as needed.
Broadcast Foliar Ground Equipment	2 lb/gal SC/L	1 lb/A	NS	8 lb/A	3	Application may be made in sufficient water (minimum 100 gallons) in ground equipment or in minimum of 10 gallons per acre by air to obtain uniform coverage. Make applications when insects first appear and repeat at 5 to 7 day intervals, or as needed.
Soil Application Drip Irrigation	2 lb/gal SC/L	2 lb/A	NS	8 lb/A	3	Apply directly to the soil via drip irrigation system. Apply with first irrigation and repeat at 14 day intervals as needed. Use 1-2 quarts per acre every 7 to 14 days early in the crop cycle when plants are small. As growth continues and plants roots and tops expand, increase dosage progressively from 3 pints/A to 4 quarts/A at 7 to 14 day intervals
Soil Application At-planting Sprinkler or Furrow Irrigation	2 lb/gal SC/L	1.25 lb/A	NS	8 lb/A	3	Using an injection shank during the planting operation, apply "Vydate L" immediately adjacent to the planter furrow. Application must be made to moist soil and must be followed as soon as possible with either sprinkler or furrow irrigation water to activate "Vydate L".

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Watermelon						
Soil incorporated treatment Preplant or at planting Ground equipment	2 lb/gal SC/L [352-372]	4 lb/A	NS	6 lb/A	1	See "Cucumber."
Broadcast application Foliar Ground equipment		1 lb/A	NS			
Yam						
Seed piece dip treatment	2 lb/gal SC/L [352-372]	2 lb/100 gal [2400 ppm]	NS	Not applicable (NA)	NA	Use limited to PR. Apply as a dip treatment for 15 minutes; allow seed piece to dry for 24 hours before planting.
Foliar treatment Ground equipment		0.5 lb/A	12	12 lb/A	60	Use limited to PR. Foliar applications may be made as a supplement to seed piece dip treatments; the first foliar application is made when adequate foliage is present. Applications may be made in sufficient water for thorough coverage (minimum of 25 gal/A) at 2-week intervals.
Nonbearing Crops (including apples, cherries, citrus, peaches, pears, and that will not bear fruit within 12 months)						
Foliar treatment Ground equipment	2 lb/gal SC/L [352-372]	1 lb/100 gal [200 gal/A of finished spray] or 2 lb/A [600 gal/A of water]	NS	8 lb/A	NA	Foliar applications may be made alone or as a supplement to preplant treatments; the first foliar application is made at first full leaf or when the plants are in active growth phase. Applications may only be made to plants that will not bear fruit within 12 months.

(continued; footnotes follow)

Table A (*continued*).

Site Application Type Application Timing Application Equipment	Formulation [EPA Reg. No.]	Maximum Single Application Rate (ai)	Maximum Number of Applications Per Season	Maximum Seasonal Rate (ai)	Preharvest Interval (Days)	Use Limitations [1, 2]
Soil incorporated treatment Preplant Ground equipment	2 lb/gal SC/L [352-372]	8 lb/A	NS	8 lb/A	NA	Applications may only be made to plants that will not bear fruit within 12 months.

1. Rotational crop restrictions for oxamyl end-use products with food/feed uses: for the 2 lb/gal SC/L [EPA Reg. No. 352-372] a plantback interval (PBI) of 4 months has been established for any crops not listed on the label; for the 3.77 lb/gal SC/L [EPA Reg. No. 352-532] a PBI of 4 months has been established for all crops except cantaloupe, carrots, celery, cotton, cucumber, eggplant, honeydew melon, peanuts, pepper (bell), potatoes, pumpkin, soybeans, squash, sweet potatoes, tobacco, tomatoes, and watermelon. For these crops plantback can occur at any time.

2. A restricted entry interval (REI) of 48 hours has been established for the 2 and 3.77 lb/gal SC/L formulations, EPA Reg. Nos. 352-372 and 352-532.

Table B. Residue Chemistry Science Assessments for Reregistration of Oxamyl.

GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References [1]
860-1200: Directions for Use	N/A = Not Applicable	Yes [2]	
860-1300: Nature of the Residue			
Plants	N/A	No	00028728, 00039511, 00040496, 00040597, 00040605, 00083525, 00134709
Livestock	N/A	No	00028732, **41469601**, **41469602**, 43365401 [3], 43431801 [3]
860-1340: Residue Analytical Methods			
- Plant commodities	N/A	No	00081618, 00113341, 00113357
- Animal commodities	N/A	No	00113341
860-1380: Storage Stability	N/A	No	00081618, **41468002-41468007**, 41936401-41936414 [4], 42607008-42607014 [5], 43504901 [6]
860-1400: Water, fish, and Irrigated Crops	N/A	N/A	
860-1460: Food-Handling Establishments	N/A	N/A	
860-1480: Magnitude of the Residue in Meat, Milk, Poultry, and Eggs			
- Milk and the Fat, Meat, and Meat Byproducts of Cattle, Goats, Hogs, Horses, and Sheep	None established	No [7]	00039513, 00040592
- Eggs and the Fat, Liver, Meat, and Meat Byproducts of Poultry	None established	No [7, 23]	00083524
860-1500: Crop Field Trials			

(continued, footnotes follow)

Table B *(continued)*. GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References [1]
Root and Tuber Vegetables Group			
- Carrots	0.1, root crop [§180.303]	No	00113339, **41402601**, 42725401 [8], 44751202[26]
- Ginger	0.1, root crop [§180.303]	No	**41632701**, 42725416 [8]
- Potatoes	0.1 [§180.303]	No	00040607, 00113339, 00113370, **41402602**, 42725408 [8]
- Sweet potatoes	0.1, root crop [§180.303]	No	00113339
- Yams	0.1, root crop [§180.303]	No [9]	
Bulb Vegetables Group			
- Garlic	0.1, root crop [§180.303]	No [10]	
- Onions, dry bulb	0.1, root crop [§180.303]	No	**41402603**, **41468008**, 41936415 [4], 42725406 [8], 43365403 [11]
Leafy Vegetables (except Brassica Vegetables) Group			
- Celery	3 [§180.303]	No	00037130, 00061648, 00113410, 00147614, **41402604**, 42725402 [8], 43365402 44654301 [25]
Legume Vegetables Group			
- Soybean seed and aspirated grain fractions	0.2, seed [§180.303]	No [12]	00030920
- Soybean forage and hay	0.2, straw [§180.303]	No [13]	00030920
Fruiting Vegetables (Except Cucurbits)			
- Eggplants	2.0 [§180.303]	No	00081618

(continued, footnotes follow)

Table B *(continued)*.

GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References [1]
- Peppers	3, bell 5.0, non-bell [§180.303]	No	PP#9F2266, 40481701 [14], 40817501 [15], 40845101 [14]
- Tomatoes	2 [§180.303]	No	00040603, 00048060, 00084889, 00113419, 44751203[26]
Cucurbits Vegetables Group			
- Cantaloupe	2.0 [§180.303]	No	00143312
- Cucumbers	2.0 [§180.303]	No	00143312
- Honeydew melon	2.0 [§180.303]	No	00143312
- Pumpkins	2.0 [§180.303]	No [16]	
- Squash, summer	2.0 [§180.303]	No [17]	00143312
- Squash, winter	2.0 [§180.303]	No	00143312
- Watermelon	2.0 [§180.303]	No	00143312
Citrus Fruits Group	3 [§180.303]		
- Grapefruit		No	00113343, **41402605**, 42725404[8]
- Lemons		No	00113343
- Oranges		No	00113343, **41402605**, 42725404[8]
Citrus Fruits Group continued	3 [§180.303]		

(continued, footnotes follow)

Table B *(continued)*. GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References [1]
- Tangelos/Tangerines		No	00113343
Pome Fruits Group			
- Apples	2.0 [§180.303]	No	00067234, 00113373
- Pears	2.0 [§180.303]	No [18]	00063016
Miscellaneous Commodities			
- Bananas	0.3 [§180.303]	No	00113389, 00129354, 00142126
- Cottonseed and cotton gin byproducts	0.2, seed [§180.303]	Yes [19]	00113341, 41016701 [20], **41402606-41402608**, 42725412-42725414 [8]
- Peanuts and peanut hay	0.2 nuts, hulls 2.0 forage, hay [§180.303]	No	00083522, 00113357, **41402609**, 42725407 [8]
- Peppermint	10.0, hay [§180.303]	No	PP#3E2860
- Pineapples	1, pineapples 10, forage [§180.303]	No	00113380
- Plantain	0.3, banana [§180.303]	No [21]	
- Spearmint	10.0, hay [§180.303]	No	PP#3E2860
- Tobacco	None established	No	41402610 [22], 41593301 [22], 41911201 [23]
Nonbearing Crops			
- Apples, cherries, citrus, peaches.	--	No	**41732401**, 42725405 [8]

860-1520: Processed Food/Feed

(continued, footnotes follow)

Table B *(continued)*. GLN: Data Requirements	Current Tolerances, ppm [40 CFR]	Must Additional Data Be Submitted?	References [1]
- Apples	--	No	00067234, 00113373
- Citrus	--	No	00113343, **41572401**, 42725403 [7]
- Cottonseed	--	No	00113341, 41016701 [19], **41572406**, 42725415 [7]
- Peanuts	--	No	00083522, **41572402**, 42016801 [4]
- Peppermint	--	No	PP#3E2860
- Pineapples	6, bran [§186.4575]	No	00113380, **41632702**, 42725417 [7]
- Potatoes	--	No	**41572403**, 42725408 [7]
- Soybeans	--	No	**41572404**, 42725409 [7]
- Spearmint	--	No	PP#3E2860
- Tomato	--	No	00040603, 00048060, **41572405**, 42725411 [7]
860-1850: Rotational Crops (Confined)	--	No	41697902 [24]
860-1900: Rotational Crops (Field)	--	No	42178201 [24]

1. References were reviewed in the Residue Chemistry Chapter of the Oxamyl Reregistration Standard dated 1/30/87. References in **bold** were reviewed in the Residue Chemistry Chapter of the Oxamyl Reregistration Standard Update dated 6/18/91. All other references were reviewed as noted.

2. Label modifications are required for several crops to reflect the use patterns for which adequate field residue data are available. These required label modifications are specified in the text under "Directions for Use".

3. CBRS Nos. 14762 and 14764, DP Barcodes D209731 and D209732, 6/24/96, L. Cheng.

4. CBRS No. 8843, DP Barcode D170851, 5/13/92, R. Perfetti.

5. CBRS No. 11231, DP Barcode D187125, 11/22/93, D. Miller.

6. CBRS No. 15005, DP Barcode D210875, 4/11/95, D. Miller.

7. The Agency has determined that there is no reasonable expectation of finite oxamyl residues of concern in animal commodities [40 CFR §180.6(a)(3)]. Therefore, livestock feeding studies and tolerances for livestock

commodities are not required.

8. CBRS No. 11755, DP Barcode D190490, 3/11/94, D. Miller.

9. No field residue data have been submitted for yams. Because the use of oxamyl on yams (seed piece dip and foliar treatments) differs greatly from that for sweet potatoes (preplant or at-planting treatment only), data cannot be translated from sweet potatoes. Nevertheless, residue data from foliar and pre-plant applications *to potatoes* are available. Since the PHI for potatoes is 1 day while that for yams is 60 days, HED believes that the residue levels in yams following treatment at the maximum label rate are unlikely to exceed the 0.1 ppm tolerance level for potatoes. Therefore, CBRS concludes that the available data indicate that a 0.1 ppm tolerance in yams is appropriate.

10. The available residue data for dry bulb onions can be translated to garlic.

11. CBRS No. 14762, DP Barcode D209731, 10/25/95, D. Miller.

12. Based on the registered uses (preplant or preemergence) of oxamyl on soybeans, the data requirements for aspirated grain fractions are waived.

13. A restriction against the feeding of treated soybean forage to livestock or the cutting of treated hay has been established. Therefore, no field trial data need be submitted.

14. CB No 3359, 3/16/88, M. Flood.

15. CB Nos. 4418 and 4562, 3/1/89, E. Haeberer.

16. The available residue data for winter squash can be translated to pumpkins.

17. The available residue data for cucumber can be translated to summer squash.

18. The available residue data for apples can be translated to pears.

19. As a result of changes in Table I of OPPTS 860.1000 (7/31/96), the Agency now considers cotton gin byproducts to be a raw agricultural commodity (RAC). Data depicting oxamyl residues of concern in/on cotton gin byproducts resulting from the maximum registered use of oxamyl on cotton are required. Cotton must be harvested by commercial equipment (stripper and mechanical picker) to provide an adequate representation of plant residue for the ginning process. At least 3 field trials for each type of harvesting (stripper and picker) are required, for a total of 6 field trials.

20. CB No. 5036, 5/16/89, J. Smith.

21. The available residue data for bananas can be translated to plantain.

22. CBRS No. 13603, D202509, 5/1/95, D. Miller.

23. CB No. 8449, DP Barcode D167588, 11/8/91, J. Smith.

24. CBRS Nos. 12016, 11991, 11992, and 11993, DP Barcode D192109, D191973, D191974, and D191975, 8/10/94, D. Miller.

25. DP Barcode D250016, 12/23/98, J. Punzi, and D256447, 6/14/99, J. Punzi.

Table B *(continued)*.

26. DP barcode D253414, 11/04/99, J. Punzi.

TOLERANCE REASSESSMENT SUMMARY

The tolerances for plant commodities listed in 40 CFR §180.303 are expressed in terms of the sum of the residues of oxamyl [methyl N',N'-dimethyl-N-((methylcarbamoyl)-oxy)-1-thiooxamimidate] and its oxime metabolite [N',N'-dimethyl-N-hydroxy-1-thiooxamimidate] calculated as oxamyl. HED notes that the oxime metabolite is listed incorrectly in 40 CFR §180.303, and should be listed as '**methyl** N',N'-dimethyl-N-hydroxy-1-thiooxamimidate."

The feed additive tolerance listed in 40 CFR §186.4575 is expressed in terms of residues of oxamyl *per se*. Because the enforcement method involved hydrolysis of oxamyl to its oxime metabolite and subsequent determination of the oxime metabolite, the tolerance expression under 40 CFR §186.4575 should be revised to regulate the combined residues of oxamyl and its oxime metabolite, calculated as oxamyl.

A summary of oxamyl tolerance reassessments is presented in Table C.

Tolerances Listed Under 40 CFR §180.303:

Adequate data are available to reassess the established tolerances for oxamyl residues in/on the following commodities: apples, bananas (including plantains), cantaloupe, celery, citrus fruits, cottonseed, cucumbers, eggplants, ginger, honeydews, dry bulb onions, peanuts, peanut hay, pears, peppermint, peppers (bell and non-bell), pineapples, potatoes, pumpkins, soybeans, spearmint, summer squash, sweet potatoes, tomatoes, watermelon, winter squash and yams.

A tolerance was originally established for the obsolete crop group "root crop vegetables" (0.1 ppm) in 1977. The tolerance for "root crop vegetables" should be revoked concomitant with establishment of individual tolerances for ginger, dry bulb onions, sweet potatoes, and yams.

Because the Agency no longer considers peanut forage and hulls, pineapple forage, and soybean straw to be significant livestock feed items, the established tolerances for these commodities should be revoked.

As a result of changes in Table II (9/95) which were incorporated into Table 1 of OPPTS 860.1000, magnitude of the residue data are currently required by the Agency for cotton gin byproducts. The appropriate tolerance for this RAC will be determined upon receipt of the requested data.

Tolerances Listed Under 40 CFR §186.4575:

Sufficient data are available to ascertain the adequacy of the established feed additive tolerance for pineapple bran (which has been redesignated "processed pineapple residue"). The available processing data indicate that the established tolerance can be reduced to 2 ppm concomitant with the revision in terminology. Also, §186.4575 should be deleted from the 40 CFR and the pineapple, process residue tolerance transferred to §186.303.

Table C. Tolerance Reassessment Summary for Oxamyl.

Commodity	Current Tolerance (ppm)	Tolerance Reassessment (ppm)	Comment/ *[Correct Commodity Definition]*
Tolerances Listed Under 40 CFR §180.303:			
Apple	2	2.0	
Banana	0.3	0.30	
Cantaloupes	2.0	2.0	*[Muskmelon]*
Honeydews	2.0		
Celery	3	10	Available data (reflecting a 14-day PHI) support tolerance increase.
Citrus fruits	3	3.0	*[Fruit, citrus, Group]*
Cottonseed	0.2	0.20	*[Cotton, undelinted seed]*
Cucumber	2.0	2.0	
Eggplant	2.0	2.0	
Peanut	0.2	0.10	Available data support tolerance decrease for Codex harmonization.
Peanut, forage	2.0	Revoke	No longer considered a significant feed item (Table 1, OPPTS 860.1000).
Peanut, hay	2.0	2.0	*[Peanuts, hay]*
Peanut, hulls	0.2	Revoke	No longer considered a significant feed item (Table 1, OPPTS 860.1000).
Pear	2.0	2.0	
Peppermint, hay	10.0	6.0	Available data support tolerance decrease. *[Peppermint, tops]*
Peppers (bell)	3	2.0	Available data support tolerance decrease for Codex harmonization. [*Peppers, bell*]
Pepper, non-bell	5.0	5.0	
Pineapple	1	1.0	
Pineapples, forage	10	Revoke	No longer considered a significant feed item (Table 1, OPPTS 816.1000).
Potato	0.1	0.10	
Pumpkin	2.0	0.20	Available data support tolerance decrease.

(continued; footnotes follow)

Table C *(continued)*.

Commodity	Current Tolerance (ppm)	Tolerance Reassessment (ppm)	Comment/ *[Correct Commodity Definition]*
Root crop vegetables	0.1	Revoke	The tolerance should be revoked concomitant with the establishment of individual tolerances for:
		0.10	*[Carrot, Roots]*
		0.10	*[Ginger, Roots]*
		0.20	Available data (reflecting a 14-day PHI) support tolerance increase. *[Onion, dry bulb]*
		0.10	*[Sweet potato, Root]*
		0.10	*[Yam, True, Tuber]*
Soybean, Seed	0.2	0.10	Available data support tolerance decrease for Codex harmonization.
Soybean straw	0.2	Revoke	No longer considered a significant feed item (Table 1, OPPTS 860.1000).
Spearmint, hay	10.0	6.0	Available data support tolerance decrease. *[Spearmint, tops]*
Summer Squash	2.0	2.0	*[Squash, summer]*
Tomato	2	2.0	
Winter Squash	2.0	0.20	Available data support tolerance decrease. *[Squash, winter]*
Watermelon	2.0	2.0	
Tolerances to be Proposed:			
Cotton, gin byproducts	--	TBD[a]	
Tolerances Listed Under 40 CFR §186.4575:			
Pineapple bran	6	2.0	*[Pineapple, process residue]*; del §186.4575 and transfer tolerance to §186.303.

[a]TBD = To be determined. Reassessment of tolerance(s) cannot be made at this time because residue data are required.

CODEX HARMONIZATION

The Codex Alimentarius Commission has established several maximum residue limits (MRLs) for oxamyl residues in various commodities (see *Guide to Codex Maximum Limits For Pesticide Residues, Part 2, FAO CX/PR, 4/91*). The Codex MRLs and U.S. tolerances are both expressed in terms of the sum of oxamyl and the oxime metabolite expressed as oxamyl. A comparison of the Codex MRLs and the corresponding **reassessed** U.S. tolerances is presented in Table D.

The following conclusions can be made regarding efforts to harmonize the U.S. tolerances with the Codex MRLs: (I) compatibility between the U.S. tolerances and Codex MRLs exists for apple, carrots, cottonseed, cucumber, melons, peanut, peanut fodder, sweet peppers, pineapple, soya bean (dry), summer squash, tomato, and watermelon, and the root and tuber vegetables ginger, potatoes, yams, and sweet potatoes; and (ii) incompatibility of the U.S. tolerances and Codex MRLs remains for banana, celery, citrus fruits, and onion (bulb) because of differences in good agricultural practices. No questions of compatibility exist with respect to commodities where Codex MRLs have been established but U.S. tolerances do not exist or will be revoked.

Table D. Codex MRLs and applicable U.S. tolerances. Recommendations for compatibility are based on conclusions following reassessment of U.S. tolerances (see Table C).

Codex		Reassessed U.S. Tolerance (ppm)	Recommendation And Comments
Commodity (As Defined)	MRL [1] (mg/kg)		
Apple	2	2.0	Compatibility exists.
Banana	0.2	0.30	
Beans except broad bean and soya bean	0.2	--	No registered uses in U.S.
Celery	5	10	
Citrus Fruits	5	3.0	
Coffee Beans	0.1	--	No registered uses in U.S.
Cotton seed	0.2	0.20	Compatibility exists.
Cucumber	2	2.0	Compatibility exists.
Maize	0.05 *	--	No registered uses in U.S.
Melons, except watermelon	2	2.0	Compatibility exists.
Onion, Bulb	0.05 *	0.20	
Peanut	0.1	0.10	Compatibility exists.
Peanut fodder	2	2 .0(hay)	Compatibility exists.
Peppers, Sweet	2	2.0	Compatibility exists.
Pineapple	1	1.0	Compatibility exists.
Root and tuber vegetables	0.1	Carrots - 0.10	Comparability exists.
		Ginger - 0.10	Compatibility exists.
		Potatoes - 0.10	Compatibility exists.
		Sweet potatoes - 0.10	Compatibility exists.
		Yams - 0.10	Comparability exists
Soya bean (dry)	0.1	0.10	Compatibility exists.
Squash, Summer	2	2.0	Compatibility exists.
Sugarcane	0.05 *	--	No registered uses in U.S.
Tomato	2	2.0	Compatibility exists.
Watermelon	2	2.0	Compatibility exists.

[1]All MRLs are at CXL step[2]. An asterisk (*) signifies that the MRL was established at or about the limit of detection.

[2] Codex Maximum Residue Limit (a Codex Draft Maximum Residue Limit becomes a CXL after its adoption by the Codex Alimentarius Commission).

AGENCY MEMORANDA RELEVANT TO REREGISTRATION

CB No.:	3359
Subject:	PP#8E3604/EPA Reg. No. 352-372. Oxamyl for Use in or on Non-Bell Peppers.
From:	M. Flood
To:	H. Jamerson and Toxicology Branch
Dated:	3/16/88
MRID(s):	40481700 and 40481701

CB Nos.:	3125 and 3126
Subject:	EPA Reg. Nos. 352-372 and 352-400. Oxamyl. Initial Response to the Guidance Document (6/29/87) for the Reregistration of Pesticide Products Containing Oxamyl.
From:	M. Nelson
To:	D. Edwards and Toxicology Branch
Dated:	4/4/88
MRID(s):	None

CB No.:	4803
Subject:	EPA Reg. No. 352-400. Oxamyl. (1) Further Response to the Oxamyl Registration Standard Data Requirement re Storage Stability Studies and (2) Request for a Time Extension.
From:	M. Nelson
To:	D. Edwards/R. Kumar
Dated:	2/22/89
MRID(s):	None

CB Nos.:	4418 and 4562
Subject:	PP#4E3048 Oxamyl in/on Non-Bell Peppers; Amendment of July 27, 1988, Supplemental Data Submission.
From:	E. Haeberer
To:	H. Jamerson and Toxicology Branch
Dated:	3/1/89
MRID(s):	40817500, 40817501, 40845100, and 40845101

CB No.: 5036
Subject: Oxamyl. Registration Request for Technical Formulation for End Use on Cotton (Vydate®C-LV EPA Reg. No. 352-LGE).
From: J. Smith
To: D. Edwards/R. Kumar
Dated: 5/16/89
MRID(s): 41016701

CB No.: 5801
Subject: WA-890024; 24© Registration for Aerial Application of Oxamyl (Vydate L) Insecticide/Nematicide on Apples to Control Tentiform Leafminor. EPA Reg. No. 352-372.
From: F. Toghrol
To: D. Edwards
Dated: 10/16/89
MRID(s): None

CB No.: 8449
DP Barcode: D167588
Subject: Oxamyl. EPA Reg. No. 352-372. Amendment of Label Reducing Use Rates on Pineapples and Tobacco.
From: J. Smith
To: D. Edwards/S. Desai
Dated: 11/8/91
MRID(s): 41911201

CBRS No.: 8843
DP Barcode: D170851
Subject: E. I. du Pont de Nemours & Co., Inc.: Response to the Oxamyl Reregistration Standard: Residue and Processing Data.
From: R. Perfetti
To: W. Burnam and L. Rossi
Dated: 5/13/92
MRID(s): 41936401 through 41936415, and 42016801

CBRS No.: 10920
DP Barcode: D184984
Subject: Oxamyl; Meeting with DuPont Representatives to Discuss Proposed Goat & Poultry Metabolism Studies.
From: W. Smith
To: B. Lowery
Dated: 5/19/93
MRID(s): None

CBTS No.: 10826
DP Barcode: D184085
Subject: ID#352-372. Oxamyl (Vydate L) in/on Bulb Onions. Request for Supplemental Labeling.
From: R. Lascola
To: C. Andreasen/D. Edwards
Dated: 6/1/93
MRID(s): None

CBRS No.: 11500
DP Barcode: D188664
Subject: Reregistration of Oxamyl. Multi-residue Testing Data of Oxamyl's metabolite. List A Case No. 0259
From: L. Edwards
To: L. Schnaubelt/B. Lowery
Dated: 7/16/93
MRID(s): 42654601

CBTS No.: 12650
DP Barcode: D195768
Subject: TX860001: Oxamyl (Vydate®L, EPA Reg. No. 352-372) use on celery in Texas. Evaluation of analytical method and residue data.
From: M. Peters
To: R. Kumar/D. Edwards
Dated: 11/5/93
MRID(s): None

CBRS No.: 11231
DP Barcode: D187125
Subject: Oxamyl. Storage Stability Studies for Apples, Cucumbers, Mint, Onions, Peanuts, Pineapple, and Soybeans.
From: D. Miller
To: B. Lowery
Dated: 11/22/93
MRID(s): 42607008-42607014

CBRS No.: 11755
DP Barcode: D190490
Subject: Oxamyl. Identification # 103801. Magnitude of the Residue and Processing Studies for Carrots, Celery, Citrus Fruits, Cottonseed, Ginger, Onions, Peanuts, Pineapples, Potatoes, Soybeans, Tomatoes, and Non-bearing crops.
From: D. Miller
To: B. Lowery
Dated: 3/11/94
MRID(s): 42725401 through 42725417

CBRS No.: None
DP Barcode: None
Subject: Response to the Oxamyl Reregistration Standard: Memo of Meeting Held on 4/22/94.
From: R. Perfetti
To: L. Rossi
Dated: 5/6/94
MRID(s): None

CBRS No.: 12016, 11991, 11992, and 11993
DP Barcode: D192109, D191973, D191974, and D191975
Subject: Oxamyl. Confined Rotational Crop Study (GDLN 165-1) and Limited Rotational Crop Field Study (165-2).
From: D. Miller
To: B. Lowery
Dated: 8/10/94
MRID(s): 41697902 and 42178201

CBRS No.: None
DP Barcode: None
Subject: Oxamyl. Memorandum of Conference with DuPont re: Additional (Repeated) Field Trials for Onions and Celery.
From: D. Miller
To: CBRS Files and R. Richards
Dated: 12/8/94
MRID(s): None

CBRS No.: 15005
DP Barcode: D210875
Subject: Oxamyl. (103801) Storage Stability Studies on Oxime Metabolite for Apples, Celery, Cucumbers, Onions, Oranges, Peanut, Pineapple, Potatoes, Soybean, Mint (spearmint), and Tomatoes. GDLN 171-4(e).
From: D. Miller
To: R. Richards
Dated: 4/11/95
MRID(s): 43504901

CBRS No.: 13603
DP Barcode: D202509
Subject: Oxamyl. (103801) Magnitude of the Residue in Tobacco and Tobacco Pyrolysis Study. GDLN 171-11.
From: D. Miller
To: B. Lowery
Dated: 5/1/95
MRID(s): 41402610 and 41593301

CBRS No.: 14762
DP Barcode: D209731
Subject: Oxamyl. (103801) Magnitude of the Residue Data for Bulb Onions and Celery. GDLN 171-4(k)
From: D. Miller
To: R. Richards
Dated: 10/25/95
MRID(s): 43365402 and 43365403

CBRS Nos.: 14762 and 14764
DP Barcode: D209731 and D209732
Subject: Oxamyl. Case 0253. Goat and Poultry Metabolism.
From: L. Cheng
To: P. Deschamp
Dated: 6/24/96
MRID(s): 43365401 and 43431801

MASTER RECORD IDENTIFICATION NUMBERS

References Used To Support Reregistration

00028728 E.I. du Pont de Nemours & Company (1974) Metabolism of Oxamyl. Summary of studies 097651-B through 097651-F. (Unpublished study received Jun 14, 1976 under 352-372; CDL:097651-A)

00028732 Harvey, J., Jr. (1975?) Metabolism of 14C-Oxamyl in the Lactating Goat. (Unpublished study received Jun 14, 1976 under 352-372; submitted by E.I. du Pont de Nemours & Co., Wilmington, Del.; CDL:097651-F)

00030920 E.I. du Pont de Nemours & Company (1977) Residue Data: Soybeans. (Unpublished study received May 30, 1980 under 352-372; CDL: 099443-F)

00037130 Holt, R.F.; Pease, H.L. (1974) Results of Tests on the Amount of Residue Remaining on Treated Crops: [Oxamyl]. Includes undated method entitled: Determination of Oxamyl residues using flame photometric gas chromatography. (Unpublished study received Jun 25, 1975 under 5F1650; submitted by E.I. du Pont de Nemours & Co., Inc., Wilmington, Del.; CDL:094497-B)

00039511 Harvey, J., Jr.; Gerike, P. (19??) Biodegradation of 14C-Oxamyl in Peanuts. Interim rept. (Unpublished study received on unknown date under 3G1349; submitted by E.I. du Pont de Nemours & Co., Wilmington, Del.; CDL:093610-J)

00039513 Manlove, L. (1973) Oxamyl Livestock Feeding Studies: Milk and Meat. Unpublished study received on unknown date under 3G1349; submitted by E.I. du Pont de Nemours & Co., Inc., Wilmington, Del.; CDL:093610-L)

00040496 Harvey, J., Jr.; Bellina, R.; Morales, R.; et al. (1970) Metabolism and Biodegradation of Oxamyl. (Unpublished study received Jul 21, 1977 under 352-372; submitted by E.I. du Pont de Nemours & Co., Wilmington, Del.; CDL:096301-C)

00040592 E.I. du Pont de Nemours & Company, Incorporated (1976) Livestock Feeding Study. (Unpublished study received Oct 21, 1976 under 6F1696; CDL:095326-A)

00040597 Harvey, J., Jr. (1975) Metabolism of Oxamyl in Tomato Fruit. (Unpublished study received Oct 21, 1976 under 6F1696; submitted by E.I. du Pont de Nemours & Co., Inc., Wilmington, Del.; CDL: 095326-F)

00040603 E.I. du Pont de Nemours & Company, Incorporated (1976) Results of Tests on the Amount of Residue Remaining on Treated Crops. (Unpublished study received Oct 21, 1976 under 6F1696;

CDL:095326-N)

00040605 Han, J.C.Y.; Harvey, J., Jr. (1975) Characterization of 14C-Harvest Residues in Potato Tubers. (Unpublished study received Oct 30, 1975 under 6F1695; submitted by E.I. du Pont de Nemours & Co., Inc., Wilmington, Del.; CDL:095227-B)

00040607 E.I. du Pont de Nemours & Company, Incorporated (1975) Oxamyl Residue Data - Potatoes (Tubers). (Unpublished study received Oct 30, 1975 under 6F1695; CDL:095227-D)

00048060 E.I. du Pont de Nemours & Company, Incorporated (1975) Results of Tests on the Amount of Residue Remaining on Treated Crops: [Oxamyl]. (Unpublished study received Oct 30, 1975 under 6F1696; CDL:095228-B)

00061648 E.I. du Pont de Nemours and Company, Incorporated (1976) Data Supporting the Use of Vydate L Oxamyl Insecticide/Nematicide on Celery. (Unpublished study received Oct 27, 1976 under 352372; CDL:226801-A)

00063016 E.I. du Pont de Nemours & Company (1980) Residue Summary: Oxamyl-Pears. (Unpublished study received Nov 21, 1980 under 352-371; CDL:099754-L)

00067234 E.I. du Pont de Nemours & Company (1980) Data Supporting Special Local Need Labeling for Use of Vydate L Insecticide/Nematicide on Apples in the State of Illinois. (Unpublished study received Jul 24, 1980 under IL 80/6; submitted by state of Illinois for du Pont; CDL:243033-A)

00081618 Interregional Research Project Number 4 (1981) Summary of Residue Data: [Oxamyl/Eggplant Field Trials]. (Compilation; unpublished study received Sep 4, 1981 under 1E2566; CDL:070295-A)

00083522 E.I. du Pont de Nemours & Company (1978) Results of Tests on the Amount of Residue Remaining on Treated Crops: [Oxamyl]. (Unpublished study received Jul 30, 1979 under 352-371; CDL:098845-G)

00083524 Zahnow, E.W. (1978) Oxamyl-chicken and Egg Study. (Unpublished study received Jul 30, 1978 under 352-371; submitted by E.I. du Pont de Nemours & Co., Wilmington, Del.; CDL:098845-K)

00083525 Harvey, J., Jr.; Han, J.C.Y.; Reiser, R.W. (1978) Metabolism of oxamyl in plants. Journal of Agricultural and Food Chemistry 26(3):529-536. (also in unpublished submission received Jul 30, 1979 under 352-371; submitted by E.I. du Pont de Nemours & Co., Wilmington, Del.; CDL:098845-L)

00113339 E.I. du Pont de Nemours & Co., Inc. (1977) [Determination of Oxamyl Residues on Treated Crops]. (Compilation; unpublished study received Mar 17, 1977 under 352-372; CDL:096042-A)

00113341 E.I. du Pont de Nemours & Co., Inc. (1976) Results of Tests on the Amount of Residue Remaining on Treated Crops: [Oxamyl]. (Compilation; unpublished study received Jan 17, 1977 under 352372; CDL:095720-A)

00113343 E.I. du Pont de Nemours & Co., Inc. (1976) Results of Tests on the Amount of Residue Remaining on Treated Crops received Oct 15, Amount of Residue Remaining on Treated Crops: [Oxamyl]. (Compilation; unpublished study received Jan 18, 1977 under 352-372; CDL:095719-A)

00113357 E.I. du Pont de Nemours & Co., Inc. (1974) [Residues of DPX 1410 in Peanuts and Various Other Crops]. (Compilation; unpublished study received Aug 1, 1974 under 3G1316; CDL:094669-B)

00113370 E.I. du Pont de Nemours & Co., Inc. (1974) Residue Data: [Oxamyl]. (Compilation; unpublished study received Oct 31, 1974 under 3G1316; CDL:095009-C)

00113373 E.I. du Pont de Nemours & Co., Inc. (1972) Results of Tests on the Amount of Residue Remaining on Treated Crops: [Oxamyl]. (Compilation; unpublished study received Dec 1, 1972 under 3G1316; CDL:095011-L)

00113376 E.I. du Pont de Nemours & Co., Inc. (1973) Vydate Oxamyl Insecticide/Nematicide: Fish Residue Study. (Compilation; unpublished study received Aug 1, 1973 under 352-371; CDL:009019-A)

00113380 E.I. du Pont de Nemours & Co., Inc. (1977) Results of Tests on the Amount of Residue Remaining on Treated Crops: [Oxamyl]. (Compilation; unpublished study received Aug 17, 1977 under 352-372; CDL:096320-C)

00113387 E.I. du Pont de Nemours & Co., Inc. (1979) Results of Tests on the Amount of Residue Remaining on Treated Crops: [Oxamyl]. (Compilation; unpublished study received Sep 14, 1979 under 352-372; CDL:098958-A)

00113389 E.I. du Pont de Nemours & Co., Inc. (1978) Results of Tests on the Amount of Residue Remaining on Treated Crops: [Oxamyl]. (Compilation; unpublished study received Nov 17, 1978 under 9E2148; CDL:097629-A; 098399)

00113410 E.I. du Pont de Nemours & Co., Inc. (1976) [Study: Vydate L Residue on Celery]. (Compilation; unpublished study received Jul 28, 1978 under 352-372; CDL:234575-A)

00113419 Hawaii (1978) [Study: Vydate Residues on Tomatoes]. (Unpublished study received Oct 29, 1979 under HI 79/8; CDL:241281-B)

00129354 E.I. du Pont de Nemours & Co., Inc. (1983) Du Pont Vydate L Insecticide/Nematicide:

Bananas: Residue Data. (Compilation; unpublished study received May 23, 1983 under 3F2833; CDL:071622-A)

00134709 Harvey, J. (1973) Additional Studies on the Metabolism and Biodegradation of Oxamyl in Plants. (Unpublished study received 1973 under 3G1316; submitted by E.I. du Pont de Nemours & Co., Inc., Wilmington, DE; CDL:092126-B)

00138996 Interregional Research Project No. 4 (1983) The Results of Tests on the Amount of Oxamyl Residues Remaining in or on Peppers, Including a Description of the Analytical Method Used. (Compilation; unpublished study received Feb 16, 1984 under 352-372;CDL:072368-A)

00142126 E.I.du Pont de Nemours and Co., Inc. (1984) Du Pont Vydate L Insecticide/Nematicide Use on Bananas . Unpublished compilation. 90 p.

00143312 E.I. du Pont de Nemours & Co., Inc. (19??) Oxamyl/DMCF Residue Analyses Cucurbits. Unpublished study. 79 p.

00145315 Interregional Research Project No. 4 (1984) Oxamyl/DMCF Residue Analysis . Unpublished compilation. 10 p.

00147614 E. I. Du Pont De Nemours and Company (1980) Residue Data Supporting the use of Vydate L Insecticide/Nematicide on Celery. Unpublished study. 10 p.

40481701 Biehn, W. (1987) Oxamyl--Magnitude of Residue on Non-Bell Pepper: IR-4 PR 1688. Unpublished study prepared by Univ., of Florida IFAS. 68 p.

40817501 Biehn, W. (1988) Oxamyl--Magnitude of Residue on Non-bell Pepper: IR-4 PR# 1688. Unpublished study prepared by IFAS--University of Florida. 116 p.

40845101 Biehn, W. (1988) Oxamyl--in/on Non-Bell Peppers: (Amendment--IR-4 Petition 8E 3604, ... Response Letter): Project ID: IR-4 PR 1688; IR-4 PR 3664. Unpublished study prepared by IR-4 Southeast Region Analytical Laboratory. 44 p.

41016701 Fowley, C. (1988) Magnitude of the Residues on or in Cottonseed and Processed Cottonseed Fractions after Treatment with Oxamyl Technical 42 Insecticide/Nematicide: Laboratory Project ID No. AMR-1251-88. Unpublished study prepared by Mckenzie Laboratories in cooperation with E.I. du Pont de Nemours & Co., Inc. 144 p.

41402601 Eble, J.; Powley, C. (1989) Magnitude of the Residue of Oxamyl Insecticide/Nematicide when Applied to Carrots: Lab Project Number: AMR-1027-88. Unpublished study prepared by McKenzie Laboratories. 26 p.

41402602 Eble, J.; Powley, C. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Potatoes and their Processed Fractions: Lab Project Number: AMR-1035-88. Unpublished study prepared by McKenzie Laboratories. 50 p.

41402603 Eble, J.; Powley, C. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide when Applied to Onions: Lab Project Number: AMR-1032-88. Unpublished study prepared by McKenzie Laboratories. 49 p.

41402604 Eble, J.; Powley, C. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide when Applied to Onions: Lab Project Number: AMR-1028-88. Unpublished study prepared by McKenzie Laboratories. 9 p.

41402605 Eble, J.; Powley, C. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Oranges Grapefruit: Lab Project Number: AMR-1030-88. Unpublished study prepared by McKenzie Laboratories. 29 p.

41402606 Eble, J.; Powley, C. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Cottonseed Grown in California or Arizona when Applications are Made with Water as Diluent: Lab Project Number: AMR-1147-88. Unpublished study prepared by McKenzie Laboratories. 31 p.

41402607 Eble, J.; Powley, C. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Cottonseed when Applications are Made with Vegetable Oil as Diluent: Lab Project Number: AMR-1148-88. Unpublished study prepared by McKenzie Laboratories. 31 p.

41402608 Eble, J.; Powley, C. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Cottonseed when Applications are Made with Water as the Diluent: Lab Project Number: AMR-1149-88. Unpublished study prepared by McKenzie Laboratories. 31 p.

41402609 Eble, J.; Powley, C. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Peanuts and Their Processed Fractions: Lab Project Number: AMR-1033-88. Unpublished study prepared by McKenzie Laboratories. 53 p.

41402610 Eble, J.; Powley, C. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide when Applied to Tobacco: Lab Project Number:AMR-1065-88. Unpublished study prepared by McKenzie Laboratories. 40 p.

41468002 Lin, W.; Kennedy, S. (1990) Freezer Storage Stability of Oxamyl in Celery: Lab Project Number: AMR-1012-87. Unpublished study prepared by McKenzie Laboratories, Inc. 21 p.

41468003: Lab Project Number: AMR-1013-87. Unpublished study prepared by McKenzie Labs, Inc. 19 p.

41468004 Lin, W.; Kennedy, S. (1990) Freezer Storage Stability of Oxamyl in Potatoes: Lab Project Number: AMR-1014-87. Unpublished study prepared by McKenzie Laboratories, Inc. 21 p.

41468005: Lab Project Number: AMR-1015-87. Unpublished study prepared by Mckenzie Labs, Inc. 19 p.

41468006 Lin, W.; Kennedy, S. (1990) Freezer Storage Stability of Oxamyl in Cottonseed: Lab Project Number: AMR-1016-87. Unpublished study prepared by McKenzie Laboratories, Inc. 21 p.

41468007 Lin, W.; Kennedy, S. (1990) Freezer Storage Stability of Oxamyl in Cottonseed Oil: Lab Project Number: AMR-1017-87. Unpublished study prepared by McKenzie Laboratories, Inc. 21 p.

41468008 Eble, J.; Powley, C. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide when Applied to Onions: Supplement No. 1: Lab Project Number: AMR-1032-88. Unpublished study prepared by McKenzie Laboratories, Inc. 28 p.

41469601 Barefoot, A. (1990) Metabolism of [14-C] Oxamyl in the Lactating Goat: Lab Project Number: AMR-1004-87: 550/3. Unpublished study prepared by E.I. Du Pont de Nemours and Co. in cooperation with Hazleton UK. 156 p.

41469602 Cresswell, D. ; Hopkins, R. (1990) Metabolism of [14-C]-Oxamyl in Laying Hens: Lab Project Number: 550/4: AMR-1005-87. Unpublished study prepared by Hazleton UK in cooperation with E.I. Du Pont de Nemours and Co. 105 p.

41572401 Lin, W., Hay, R. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Citrus and Their Processed Fractions: Lab Project Number: AMR-1029-88. Unpublished study prepared by McKenzie Laboratories, Inc. in Association with Lake Alfred Citrus Research Center. 32 p.

41572402 Lin, W., Hay, R. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Peanuts and Their Processed Fractions: Lab Project Number: AMR-1033-88. Unpublished study prepared by Mckenzie Laboratories in Association with The Texas A&M University System. 28 p.

41572403 Lin, W.; Hay, R. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Potatoes and their Processed Fractions: Lab Project Number: AMR-1035-88. Unpublished study prepared by McKenzie Laboratories. in Association with The National Food Laboratory, Inc. 31 p.

41572404 Lin, W.; Hay, R. (19??) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Soybeans and their Processed Fractions: Lab Project Number: AMR-1036-88. Unpublished study prepared by McKenzie Laboratories, Inc. in Association with Texas A & M University System. 33 p.

41572405 Lin, W.; Hay, R. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Tomatoes

and their Processed Fractions: Lab Project Number: AMR-1038-88. Unpublished study prepared by McKenzie Laboratories in Association with National Food Laboratory, Inc. 38 p.

41572406 Lin, W.; Hay, R. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Cottonseed and Its Processed Fractions: Lab Project Number: AMR-1150-88. Unpublished study prepared by The Texas A&M University System. 33 p.

41593301 Holt, R. (1990) Pyrolysis Study of Carbon 14 -oxamyl in Cigarette: Lab Project Number: AMR-1812-90. Unpublished study prepared by E. I. du Pont de Nemours and Co. 17 p.

41632701 Lin, W.; Hay, R. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Ginger Root: Lab Project Number: AMR/1382/89. Unpublished study prepared by E. I. du Pont de Nemours & Co. in association with Hawaiian Sugar Planters Association. 31 p.

41632702 Lin, W.; Hay, R. (1990) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Processed Fractions of Pineapple: Lab Project Number: AMR/1390/89. Unpublished study prepared by E. I. du Pont de Nemours and Company and Hawaiian Sugar Planters' Association. 37 p.

41697902 Hawkins, D.; Mayo, B.; Pollard, A.; et al. (1990) Chronic Toxicity Study with Oxamyl (IN D1410-196): One-year Feeding Study in Dogs: Lab Project Number: AMR-1190-88: HRC/DPT 195/901279. Unpublished study prepared by E. I. du Pont de Nemours and Co. 91 p.

41732401 Lin, W.; Hay, R. (1990) Magnitude of Oxamyl Insecticide/Nematicide Residues in Stone Fruit when Applied to Non-Bearing Trees: Lab Project Number: AMR-1031-88. Unpublished study prepared by E.I. du Pont de Nemours and Co. 33 p.

41911201 Lin, W.; Hay, R. (1991) Residues of Oxamyl In Fresh and Dried Tobacco: Lab Project Number: AMR-1708-90. Unpublished study prepared by Mckenzie Laboratories, Inc. 30 p.

41936401 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Pineapple: Lab Project Number: AMR-1401-89. Unpublished study prepared by E.I. du Pont de Nemours and Co. and McKenzie Lab, Inc. 24 p.

41936402 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Peanuts: Lab Project Number: AMR-1399-89. Unpublished study prepared by E.I. du Pont de Nemours and Co. and McKenzie Labs. 24 p.

41936403 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Soybeans: Lab Project Number: AMR-1399-89. Unpublished study prepared by E.I. du Pont de Nemours and Co. and Mckenzie Labs, Inc. 25 p.

41936405 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Onions: Lab Project Number:

AMR-1397-89. Unpublished study prepared by E.I. du Pont de Nemours and Co. and McKenzie Labs, Inc. 26 p.

41936404 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Mint: Lab Project Number: AMR-1396-89. Unpublished study prepared by E.I. du Pont de Nemours and Co. and McKenzie Labs, Inc. 24 p.

41936406 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Cucumbers: Lab Project Number: AMR-1402-89. Unpublished study prepared by E.I. du Pont de Nemours and Co. and McKenzie Labs. 24 p.

41936407 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Apples: Lab Project Number: AMR-1398-89. Unpublished study prepared by E.I. du Pont de Nemours and Co. and McKenzie Labs, Inc. 24 p.

41936408 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Tomatoes: Supplement #1 to MRID 41468005: Lab Project Number: AMR-1015-87. Unpublished study prepared by Mckenzie Labs, Inc. 19 p.

41936409 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Oranges: Supplement #1 to MRID 41468003: Lab Project Number: AMR-1013-87. Unpublished study prepared by McKenzie Labs, Inc. 19 p.

41936410 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Potatoes: Supplement #1 to MRID 41468004: Lab Project Number: AMR-1014-87. Unpublished study prepared by McKenzie Labs, Inc. 19 p.

41936411 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Celery: Supplement #1 to MRID 41468002: Lab Project Number: AMR-012-87. Unpublished study prepared by McKenzie Labs, Inc. 19 p.

41936412 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Cottonseed: Supplement #1 to MRID 41468006: Lab Project Number: AMR-1016-87. Unpublished study prepared by McKenzie Labs, Inc. 20 p.

41936413 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Cottonseed Oil: Supplement #1 to MRID 41468007: Lab Project Number AMR-1017-87. Unpublished study prepared by McKenzie Labs Inc. 19 p.

41936414 Lin, W.; Tomic, D. (1991) Freezer Storage Stability of Oxamyl in Soil: Supplement #1 to MRID 41468001: Lab Project Number: AMR-999-87. Unpublished study prepared by McKenzie Labs,

Inc. 19 p.

41936415 Lin, W. ; Tomic, D. (1991) Magnitude of the Residues of Oxamyl Insecticide/Nematicide When Applied to Onions--a 1990 Study: Lab Project Number: AMR-1696-90. Unpublished study prepared by McKenzie Labs, Inc. 27 p.

42016801 Lin, W.; Tomic, D. (1991) Residues of Oxamyl Insecticide/Nematicide in Peanuts and Their Processed Fractions: Lab Project Number: AMR-1697-90: Unpublished study prepared by E.I. du Pont de Nemours and Co., Texas A&M University System and McKenzie Labs, Inc. 35 p.

42178201 Lin, W.; Tomic, D. (1992) Rotational Crops Study with Vydate L Insecticide/Nematicide: Lab Project Number: AMR 1695-90. Unpublished study prepared by E. I. Du Pont de Nemours and Co. in coop with McKenzie Labs. 108 p.

42607008 McClory, J.; Sumpter, S.; Tomic, D. (1992) Freezer Storage Stability of Oxamyl in Mint: Supplement No. 1: Lab Project No. AMR-1396-89. Unpublished study prepared by DuPont and McKenzie Labs, Inc. 28 p.

42607009 McClory, J.; Sumpter, S.; Tomic, D. (1992) Freezer Storage Stability of Oxamyl in Onions: Supplement No. 1: Lab Project Number: AMR-1397-89. Unpublished study prepared by DuPont and McKenzie Labs, Inc. 28 p.

42607010 McClory, J.; Sumpter, S.; Tomic, D. (1992) Freezer Storage Stability of Oxamyl in Apples: Supplement No. 1: Lab Project Number: AMR-1398-89. Unpublished study prepared by DuPont and McKenzie Labs, Inc. 28 p.

42607011 McClory, J.; Sumpter, S.; Tomic, D. (1992) Freezer Storage Stability of Oxamyl in Soybeans: Supplement No. 1: Lab Project Number: AMR-1399-89. Unpublished study prepared by DuPont and McKenzie Labs, Inc. 34 p.

42607012 McClory, J.; Sumpter, S.; Tomic, D. (1992) Freezer Storage Stability of Oxamyl in Peanuts: Supplement No. 1: Lab Project Number: AMR-1400-89. Unpublished study prepared by DuPont and McKenzie Labs, Inc. 30 p.

42607013 McClory, J.; Sumpter, S.; Tomic, D. (1992) Freezer Storage Stability of Oxamyl in Pineapple: Supplement No. 1: Lab Project Number: AMR-1401-89. Unpublished study prepared by DuPont and McKenzie Labs, Inc. 29 p.

42607014 McClory, J.; Sumpter, S.; Tomic, D. (1992) Freezer Storage Stability of Oxamyl in Cucumbers: Supplement No. 1: Lab Project Number: AMR-1402-89. Unpublished study prepared by DuPont and McKenzie Labs, Inc. 28 p.

42725401 Sumpter, S. (1993) Magnitude of Residues of Oxamyl Insecticide/Nematicide When Applied to Carrots: Supplement No. 1: Lab Project Number: AMR-1027-88. Unpublished study prepared by E. I. du Pont de Nemours and Co. and McKenzie Labs, Inc. 14 p.

42725402 Sumpter, S. (1993) Magnitude of Residue of Oxamyl Insecticide/Nematicide when Applied to Celery: Supplement No. 1: Lab Project Number: AMR-1028-88. Unpublished study prepared by E. I. du Pont de Nemours and Co. and McKenzie Labs, Inc. 15 p.

42725403 McClory, J. (1993) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Citrus and Their Processed Fractions: Supplement No. 1: Lab Project Number: AMR-1029-88. Unpublished study prepared by E. I. du Pont de Nemours and Co., Lake Alfred Citrus Research Center, University of Florida and McKenzie Labs, Inc. 16 p.

42725404 McClory, J. (1993) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Oranges and Grapefruit: Supplement No. 1: Lab Project Number: AMR-1030-88. Unpublished study prepared by E. I. du Pont de Nemours and Co., McKenzie Labs, Inc. 14 p.

42725405 McClory, J. (1993) Magnitude of Oxamyl Insecticide/Nematicide Residues in Stone Fruit when Applied to Non-Bearing Trees: Supplement No. 1: Lab Project Number: AMR-1031-88. Unpublished study prepared by E. I. du Pont de Nemours and Co. and McKenzie Labs, Inc. 14 p.

42725406 Sumpter, S. (1993) Magnitude of Residues of Oxamyl Insecticide/Nematicide when Applied to Onions: Supplement No. 2: Lab Project Number: AMR-1032-88. Unpublished study prepared by E. I. du Pont de Nemours and Co., and McKenzie Labs, Inc. 17 p.

42725407 McClory, J. (1993) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Peanuts and their Processed Fractions: Supplement No. 2: Lab Project Number: AMR-1033-88. Unpublished study prepared by E. I. du Pont de Nemours and Co., the Food Protein Research and Development Center of The Texas A&M University System, and McKenzie Labs, Inc. 26 p.

42725408 Sumpter, S. (1993) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Potatoes and their Processed Fractions: Supplement No. 2: Lab Project Number: AMR-1035-88. Unpublished study prepared by E. I. du Pont de Nemours and Co., The National Food Lab, Inc. and McKenzie Labs, Inc. 25 p.

42725409 Sumpter, S. (1993) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Soybeans and their Processed Fractions: Supplement No. 1: Lab Project Number: AMR-1036-88. Unpublished study prepared by E. I. du Pont de Nemours and Co., The Texas A&M University System and McKenzie Labs, Inc. 26 p.

42725411 Sumpter, S. (1993) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Tomatoes and

their Processed Fractions: Supplement No. 1: Lab Project Number: AMR-1038-88. Unpublished study prepared by E. I. du Pont de Nemours and Co., National Food Lab, Inc. and McKenzie Labs, Inc. 24 p.

42725412 McClory, J. (1993) Magnitude of Residue of Oxamyl Insecticide/Nematicide in Cottonseed Grown in California or Arizona when Applications are Made with Water as the Diluent: Supplement No. 1: Lab Project Number: AMR-1147-88. Unpublished study prepared by E. I. du Pont de Nemours and Co. and McKenzie Labs, Inc. 14 p.

42725413 McClory, J. (1993) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Cottonseed when Applications are Made with Vegetable Oil as the Diluent: Supplement No. 1: Lab Project Number: AMR-1148-88. Unpublished study prepared by E.I. du Pont de Nemours and Co. and McKenzie Labs, Inc. 16 p.

42725414 McClory, J. (1993) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Cottonseed when Applications are Made with Water as the Diluent: Supplement No. 1: Lab Project Number: AMR-1149-88. Unpublished study prepared by E. I. du Pont de Nemours and Co. and McKenzie Labs, Inc. 14 p.

42725415 McClory, J. (1993) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Cottonseed and its Processed Fractions: Supplement No. 1: Lab Project Number: AMR-1150-88. Unpublished study prepared by E. I. du Pont de Nemours and Co., The Texas A&M University System and McKenzie Labs, Inc. 24 p.

42725416 Sumpter, S. (1993) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Ginger Root: Supplement No. 1: Lab Project Number: AMR-1382-89. Unpublished study prepared by E. I. du Pont de Nemours and Co. and Hawaiian Sugar Planters Association Experimental Station. 14 p.

42725417 McClory, J. (1993) Magnitude of Residues of Oxamyl Insecticide/Nematicide in Processed Fractions of Pineapple: Supplement No. 1: Lab Project Number: AMR-1390-89. Unpublished study prepared by E. I. du Pont de Nemours and Co. and Hawaiian Sugar Planters Association. 19 p.

43365401 Li, Y. (1994) The Metabolism of (carbon 14)-Oxamyl in Lactating Goats: Lab Project Number: AMR-2578-92: SC920240. Unpublished study prepared by DuPont Agricultural Products and Battelle. 275 p.

43365402 McClory, J.; Tomic, D. (1994) Magnitude of Residues of Oxamyl in Celery Following Application of Vydate L Insecticide/Nematicide at Maximum Label Rates: Lab Project Number: AMR-2568-93. Unpublished study prepared by DuPont Agricultural Products and McKenzie Labs, Inc. 130 p.

43365403 Sumpter, S.; Tomic, D. (1994) Magnitude of Residues of Oxamyl in Bulb Onions Following Application of Vydate L Insecticide/Nematicide at Maximum Label Rates: Lab Project Number: AMR-2567-93. Unpublished study prepared by DuPont Agricultural Products and McKenzie Labs, Inc. 115 p.

43431801 Behmke, C.; Scott, M.; Stringer, D. (1994) Metabolism of (carbon 14) Oxamyl in Laying Hens: Lab Project Number: SC920239: AMR-2546-92. Unpublished study prepared by DuPont Agricultural Products. 379 p.

43504901 Sumpter, S.; Orescan, D. (1994) Freezer Storage Stability of Oxime in Crops: Lab Project Number: AMR-2488-92. Unpublished study prepared by McKenzie Labs, Inc. 152 p.

44654301 McClory, J.; Summers, S. (1998) Magnitude of Residues of Oxamyl in Celery Following Application of Vydate L Insecticide/Nematicide at Maximum Label Rates: Lab Project Number: AMR 3437-95. Unpublished study prepared by DuPont Agricultural Products. 220 p.

44751202 McClory, J. (1999) Magnitude of Residues of Oxamyl in Carrots Following Application of Vydate L Insecticide/Nematicide at Maximum Label Rates: Lab Project Number: AMR 3301-95. Unpublished study prepared by DuPont Agricultural Products. 95 p.

44751203 McClory, J. (1999) Magnitude of Residues of Oxamyl in Tomatoes Following Application of Vydate L Insecticide/Nematicide at Maximum Label Rates: Lab Project Number: AMR 4347-97. Unpublished study prepared by DuPont Agricultural Products. 325 p.